

## Subcommittee on Airports |MINUTES

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**Meeting date | time** 3/19/2013 9:00 AM | **Meeting location** FAA Technical Center  
– Atlantic City Int’l Airport, NJ

<b>Purpose</b>	Airports REDAC Subcommittee Spring Briefing
<b>Facilitator</b>	James White, FAA-DFO
<b>Note taker</b>	Satish Agrawal
<b>Timekeeper</b>	Satish Agrawal

Opening Remarks and introductions by Chris Oswald, Subcommittee Chair. New members have been added; Ms. Barbara Busiek, Director of Construction and Grants Administration, Northwest Arkansas Regional Airport, Dr. Matthew Ganz, Vice President-BR&T The Boeing Company, Mr. Alfred Pollard, Airport Director Martin State Airport, Maryland Aviation Administration, Ms. Stephanie L. Saracco, Chief Operating Officer, Pittsburgh International Airport.

James White provided an update on sequestration, its impact on the FAA and how AIP is exempt (under current law). He also indicated that it is likely that FAA will be operating under a full year continuing resolution in FY 2013 that would keep Airport Technology Research funded at the FY 2012 level. It is also likely that the FY 2014 and FY 2015 budgets will not propose any increase in Airport Technology Research.

Richard Marchi recommended the subcommittee invite a member from ACRP to future meetings.

John Wiley provided introductory remarks, and more discussion on sequestration and long term effects. He briefed on REDAC goals, changes, and importance of identifying actionable findings and recommendations. He reminded subcommittee that although the Airport Technology Research program is not subject to sequestration, the other organizations at the Technical Center will be, and they will be having a number of days of furloughs for remainder of FY 2013.

Cathy Bigelow gave a presentation on REDAC roles and responsibilities.

Satish Agrawal welcomed the group, gave an overview on the FY 2013 budget and discussed the 10-year Airport Technology Research Plan. Satish also provided an overview of the Heavy Vehicle Simulator (HVS) facility and the project for extending pavement life to 40-years. He said the heated pavements and aircraft braking projects will be highlighted later in the meeting. He provided a quick overview of the purpose of the braking project and the difference between the Broad Agency Announcement (BAA) effort. He discussed the SRA contract ending this calendar year and that they are currently doing the acquisition process for a new contract.

Gloria Dunderman informed the Subcommittee that she has a REDAC database of recommendations. Each subcommittee should have Spring 2012 recommendations.

Jim Patterson went through each recommendation and its status (see details on Page 4). Jim then discussed the new Runway Simulator model that has been developed by Mitre. The Office of

Airports is considering have the Technical Center take over this model with the intent of maintaining it and making it available for public use.

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**Presentation** *Heated Pavements* | **Presenter** *Don Barbagallo*

**Discussion** – Questions and discussion included areas on an airport where the use of heated pavements might be practicable (i.e., high-speed taxiways), surveying airports on snow removal costs, benefits to airlines, maintenance costs, advanced materials such as “nano”, and target costs.

**Conclusion** - Proceed with Binghamton evaluation, but do not test new materials.

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**Presentation** *Aircraft Braking Study* | **Presenter** *Joe Breen*

**Discussion** - Questions and discussion included coordination with Team Eagle’s R&D, the modifications made to the test aircraft antiskid system. A discussion took place on idea of forming a peer review panel to evaluate the project accomplishments and potential for success. This idea was deferred until the next Subcommittee meeting when additional data will be available.

**Conclusion** – Would like see the results of the wet/dry testing and get another update in August.

<b>Action items</b>	<b>Person responsible</b>	<b>Deadline</b>
Project update	Joe Breen	August REDAC

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**Presentation** *Visual Guidance* | **Presenter** *Don Gallagher*

**Discussion** – There was discussion on LED lights and coordination with the manufacturers about installing a counter-type device inside. It was requested that airport operators be considered when designing the devices, and provide them with any technical assistance.

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**Presentation** *Surface Operations* | **Presenter** *Nick Subbotin*

**Discussion** – A brief discussion on TALPA implementation was given as well as damage to EMAS beds from Hurricane Sandy.

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**Presentation** *Airport Surface Surveillance* | **Presenter** *Kent Duffy*

**Discussion** - Reviewed the status of the ADS-B squitter project at BOS and discussed the potential operational benefits to airports.

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**Presentation** *EMAS Marking, APCH Hold/RSA Marking, Safety Database, Problematic Geometry, Aircraft Noise and Annoyance* | **Presenter** *Lauren Vitagliano*

**Discussion** – For the Airport Safety Database, there was discussion on the Top 5 areas and RPZ incidents. James White offered a clarifying synopsis for the Problematic Taxiway Geometry project. For the Aircraft Noise and Annoyance project, clarification was provided that the Tech Center is coordinating with the ACRP noise project as well as the Office of Environment and Energy (AEE).

**Conclusion** – For the APCH/RSA Signage and Marking project, it was suggest we get vehicle driver feedback for new signage.

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**Subcommittee Discussion of Open Recommendations** (Discuss status of FAA response and decide to close or remain open)

Review of Spring 2012 Recommendations:

1. Spring 2012-1 – Accepted as positive comment. Status: CLOSED.
2. Spring 2012-2 FOD – Work continues at limited demonstration through deployment. Status: CLOSED.  
James White shared that three airports have been selected for the limited demonstration deployments namely BOS, MSP, and MIA. Both BOS and MIA will do fixed installation systems on one runway. MSP will use a mobile system. Ryan King is the Tech Center POC. There was additional discussion on FOD performance specs, AIP eligibility, financial payback to airlines.
3. Spring 2012-3 Trapezoidal Grooves. Status: CLOSED as per slide.  
CO suggested it remain open, but later discussion (on Day2) confirmed it would be closed.
4. Spring 2012-4 Noise – Status: CLOSED.  
James White discussed the background for this noise survey project and that it's of particular interest to the Office of Airports. A suggestion was made to make sure that complementary research is captured in a new recommendation.
5. Spring 2012-5 Heated Pavement. Status: CLOSED. As per Slide.  
Chris Oswald stated that they were looking for additional concrete support from Scandinavian installations. He suggested that like the trapezoidal groove recommendation should be left OPEN at least until the project is discussed later in the day.
6. Spring 2012-6 Aircraft Braking – Status: CLOSED. As per slide. There was discussion on whether to keep this open. Gloria suggested it be closed since the recommendations were met and if there are additional concerns, a new recommendation can be opened.
7. Spring 2012-7 REDIM – Status: CLOSED as per slide.
8. Fall 2012-1 Heated Airfield Pavements. Status: OPEN.  
Jim Patterson informed that the Technical Center engineers did go to Oslo and that the Binghamton, NY project ran into money problems. The Binghamton project should be online during the 2013 summer and data collection should resume next winter.

9. Fall 2012-2 Aircraft Braking: Status: CLOSED.

10. Fall 2012-3 40 Year Pavement Life (Presented by Jeff Gagnon) - Status to remain OPEN.

Jim Patterson explained the special blade/patent issue for trapezoidal grooves. The subcommittee discussed whether additional full scale testing of trapezoidal grooves was needed. The subcommittee concluded that the previous testing had demonstrated a benefit by more quickly shedding water of the runway. They thought best way forward was for FAA to allow the use of trapezoidal grooves along with standard grooves. The airports could decide if they wanted to incur the additional costs of using trapezoidal grooves. Determination on Recommendation Spring 2012-3 – CLOSED.

Chris Oswald: Highlighted two more Recommendation items.

- 1) Heated Pavements – Advanced Materials – Supported plan but wants to have periodic updates on progress, and incorporate intersections and taxiway exits into plan. There were suggestions for obtaining operational cost estimates, lifecycle costs for different types of systems.
- 2) Braking Friction – SC is interested in seeing results of dry/wet pavement testing at the Spring subcommittee meeting. If winter testing is not going to be available by spring meeting than propose to hold a call to discuss progress by June.

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### **Subcommittee on Airports |MINUTES**

**Meeting date | time 3/20/2013 9:00 AM**

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#### **Presentation Aircraft Rescue Fire Fighting | Presenter Keith Bagot**

**Discussion** - Provided summary of recently completed live fire testing on the donated FedEx aircraft. Explained that we do not have an active lithium battery program, but we follow very closely and support the other group who does. Not to say we couldn't consider it in the future.

There was discussion on the modeling capabilities, live fire tests for biofuels, disseminating information to cargo industry and showed 2 videos ARFF videos.

**Conclusion** – Would like to continue to see information disseminated, especially to cargo aircraft groups.

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#### **Presentation Visual Guidance and Low Cost Surface Surveillance | Presenter Robert Basse**

**Discussion** – Mr. Basse showed videos on heliport work in North Dakota, and discussed the wind cone findings. He also discussed Low Cost Surface Surveillance – its implementation, benchmarks, and coordination with other groups doing similar LCSS work. In reference to the airport signage for construction project, coordination with ATC was also discussed.

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**Presentation** *Wildlife* | **Presenter** *Ryan King*

**Discussion** – The subcommittee was reminded that strike reporting is voluntary. There was discussion on why we’re doing research on the ground. Mr. King clarified we are looking at the ground as well as other phases of flight. He confirmed coordination with Alaska Airlines’ research in regards to pulsing lights. There was additional discussion on avian sensors and the possibility of using BOS as a test site for the FAA purchased Merlin radar once current testing is completed with USDA.

**Conclusion** – A possible recommendation may be to assess the operational environment for bird radar.

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**Presentation** *Airport Planning* | **Presenter** *Holly Cyrus*

**Discussion** – Questions were asked about how this tool can be used by the airports (spacing for new high speed exits). Ms. Cyrus clarified and said the goal was to update the data. There was a brief discussion about the differences between Runway Sim and REDIM.

**Conclusion** – Now that the data has been updated, the Office of Airports must determine the next steps.

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**Presentation** *2013 Pavement Projects* | **Presenter** *Jeffrey Gagnon*

**Discussion** – Mr. Jeffrey Gagnon introduced the 2013 pavement projects and plans for FY14. There was a discussion on ASR issues and comments on the 40-year pavement design plan

**Conclusion** – It may be cost effective to haul in quality materials to get longer life from pavement and this should be considered.

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**Presentation** *40-Year Design Life Initiative* | **Presenter** *Dr. David Brill*

**Discussion** – Dr. Brill clarified the 40-year life of asphalt pavement will include major maintenance cycles to get pavement back above a given lower limit. 40-year life must address both structural condition and functionally of the pavement. Issues about roughness would fall under functionally and criteria would have to be developed. It was suggested to look at issues concerning high tire pressure and shoving of pavement. What types of aircraft will be used to plan for 40 years?

**Conclusion** – The 40-year life recommendation can be closed. A possible new recommendation would be to work with the concrete and asphalt industries to develop indexes for accessing pavement condition with regard to its expected life.

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**Presentation** *FAA PAVEAIR Update & Software Integration* | **Presenter** *Al Larkin*

**Discussion** – James White commented that PAVEAIR has been a success story. Monte Symons agreed saying that it was always a problem getting data from a variety of sources across the nation because each entity was keeping their own individual records.

**Conclusion** – Having data assembled in one application really helps and could be a real asset in the future.

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**Presentation** *High Temperature Test Facility* | **Presenter** *Murphy Flynn & Dr. Navneet Garg*

**Discussion** – There was discussion about the HVS facility. The HVS project will have one control room. Asphalt aging is better represented in outdoor environment.

**Conclusion** – The HVS will be used to test surface materials while NAPTF vehicle tests subgrade structure.

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**Presentation** *Full Scale Testing Results and Future Testing* | **Presenter** *Dr. David Brill*

**Discussion** – The current plan is to have one load for all test sections and to monitor strain levels produced in the various sections. CC6 concrete pavement tests were discussed.

**Conclusion** – There was a suggestion which advised against relaxing the requirements on brittle mixtures without some qualification on aggregate composition and/or restriction on cement content.

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**Presentation** *Reflective Cracking R&D Update* | **Presenter** *Don Barbagallo & Dr. David Brill*

**Discussion** – The last series of testing with the rig went very well. Future testing was discussed; looking into interlayer crack arresting systems.

**Conclusion** – Reflective crack testing with pavement wheel loads will probably wait until the HVS arrives since modification of existing rig is too costly.

**Next Meeting** – September 10-11, 2013 at the William J. Hughes Technical Center, NJ

**Time Adjourned** - 3:00 p.m.

## Attendance

### Members

Christopher Oswald, Chair  
Barbara Busiek  
Flavio Leo  
Alfred Pollard  
James Wilding

Rick Kessel  
Mike Roginski  
Paul Martinez  
Stephanie Saracco  
Dick Marchi

Kevin Bleach  
Steve Jangelis  
Gary L. Mitchell  
Monte Symons

### Other Attendees

Satish Agrawal, PPT Co-Chair  
Cathy Bigelow, FAA  
Murphy Flynn, FAA  
Navnett Garg, FAA  
Nick Subbotin, FAA  
Peter Sparacino, FAA  
Keith Bagot, FAA  
Bill Allen, SRA  
Jennifer Klass, SRA  
Robert Bussey  
Al Larkin, FAA

James White, DFO FAA  
Gloria Dunderman, FAA  
Jeff Gagnon, FAA  
Donald Barbagallo, FAA  
Chuck Treubert, SRA  
Halil Ceylan, Iowa State  
Don Gallagher, FAA  
Holly Cyrus, FAA  
Joe Breen  
Ryan King, FAA

John Wiley, FAA  
Kent Duffy, FAA  
Quinn Jia, FAA  
Jim Patterson, FAA  
Jerry Connelly, SRA  
Seth Young, Ohio State  
Lauren Vitagliano, FAA  
Richard Wlezien, Iowa State  
Jim Patterson, FAA  
David Brill, FAA

**FINDINGS & RECOMMENDATIONS: SUBCOMMITTEE ON AIRPORTS  
SPRING 2013 MEETING  
MARCH 19-20, 2013**

**FINDINGS & RECOMMENDATIONS**

**Finding:** The Subcommittee is pleased to see that the turn-around time for research reports has been reduced from 9-12 months to 2-3 months as a result of reorganized editorial procedures.

**Finding:** The Subcommittee reiterated the need for continuing coordination between noise and sleep disturbance projects within the FAA Office of Energy & Environment's research and development program (e.g., PARTNER Projects 24 and 25) and the noise study currently underway within the Airport Technologies Program (Airport Sleep and Annoyance/Aircraft Noise (RPD149)).

**Recommendation:** The Subcommittee recommends that the Subcommittee on Energy & Environment and the Subcommittee on Airports receive regular briefings regarding each subcommittee's noise projects to ensure that redundancy among these projects is minimized.

**Finding:** Regarding RPD149, The Subcommittee would like to ensure that airport operators are informed about planned noise survey efforts well in advance of administration of these surveys.

**Recommendation:** The Subcommittee recommends that the RPD149 project team meet with airport noise/environmental specialists at the airports where noise perception surveys will be administered to review the survey contents, research objectives, and survey plan (e.g., communities that will be surveyed, survey sample sizes) in advance of administration of the surveys.

**Finding:** The Subcommittee appreciates the work to evaluate existing heated pavement installations in RPD155, but had concerns about whether advanced materials research should take place before more convincing evidence can be provided regarding the circumstances under which heated pavement systems are cost effective.

**Recommendation:** The Subcommittee approved the 2013 & 2014 work plans for the RPD155, but would like to continue to receive detailed briefings concerning project progress. We strongly recommend that the FAA describe the circumstances under which heated pavements are likely to be cost beneficial (high-speed exits, critical turn locations, aprons) as well as the rationale behind this assessment. We also recommend that additional efforts be put forward to estimate the life-cycle costs of these systems.

**Finding:** FAA has provided improved explanations of the objectives, research plan, and progress associated with RPD147, Aircraft Braking Friction. They have also included "go/no go" decision points in the project schedule as requested by the Subcommittee. However, the Subcommittee continues to have concerns about the project's complexity and challenges associated with producing meaningful research results.

**Recommendation:** The Subcommittee will continue to closely monitor this project. We recommend that the FAA present results of dry/wet braking tests at our September 2013 meeting to assess project progress. In addition, if data from winter condition tests that will be performed during the Winter 2013-2014 season isn't available for reporting by the Subcommittee's Spring 2014 meeting, the Subcommittee recommends holding a special coordination call with FAA staff to discuss these results in May or June 2014 to assess progress.

**Finding:** The Subcommittee is pleased to see that many of the FAA's aircraft and rescue and firefighting projects are concluding successfully.

**Recommendation:** As ARFF project technical reports—particularly those associated with cargo aircraft—become available, we encourage the FAA to distribute widely to key stakeholders, including airport ARFF representatives and cargo airline representatives.

**Finding:** The Subcommittee believes that the FAA is making good progress on several research projects that deal with advanced sensor technologies (i.e., foreign object debris [FOD] detection in Airport Design (RPD133), avian radar in Wildlife Hazards Research and Development (RPD150), low cost surface surveillance in RPD151), but would like to see additional focus on the operational integration of these systems in the field environment. There is also a desire to utilize identified operational needs as the basis for technology specifications, rather than starting from current vendor system capabilities, which may exceed these operational needs.

**Recommendation:** The Subcommittee recommends explicit consideration of operational integration of the aforementioned airport sensor technologies into the airport environment and the development of operational justifications for the specifications developed under the research program.

**Finding:** Regarding Pavement Design and Evaluation (RPD 145), the Subcommittee believes that the FAA has addressed our recommendations from our Fall 2012 meeting on a conceptual level. These recommendations included (1) definition of the term "40-year design life" and (2) description of project success criteria. This said the Subcommittee would like to see refinement/embellishment of these definitions as the project proceeds. There was also a desire to have opportunities for more robust industry participation of the project by subject matter experts (SME) in both asphalt & Portland cement concrete design.

**Recommendation:** The Subcommittee recommends forming a SME advisory panel with selected members of the Subcommittee and the Airfield Pavement Working Group that can collaborate with the FAA project team directly in its refinement and execution of the RPD 145 work plan, leaving the subcommittee free to focus on the higher level aspects of the pavement research program.

**Finding:** The Subcommittee believes that research conducted by the FAA demonstrates that trapezoidal transverse pavement grooves improve runway drainage and reduce groove wear in comparison to conventional rectangular transverse grooves.

**Recommendation:** The Subcommittee encourages the FAA to make necessary modifications to its advisory guidance—particularly Advisory Circular 150/5320-12C, *Measurement, Construction, and Maintenance of Skid-Resistant Airport Pavement Surfaces*—so that airport

operators can utilize trapezoidal grooves to improve runway drainage and friction under wet conditions should they desire.

**Finding:** The Subcommittee would like to emphasize the need for and value of the Airport Pavement Test Vehicle (RPD 135), construction of the high temperature pavement test facility. This facility will enable the testing of asphalt concrete pavements under “real-world” environmental conditions, including innovative AC paving techniques (e.g., warm mix asphalt) and new AC materials (e.g., advanced polymers binders, stone matrix asphalt, recycled asphalt).

**Finding:** The Subcommittee encourages the National Airport Pavement Test Facility (RPD 138) project to continue investigating high strength concrete effects on pavement fatigue life. The current research results indicate that high strength (e.g., flexural strength of approximately 1000 psi) PCC surface layers perform as well or better than medium strength PCC surface layers (e.g., flexural strength of 750 psi) assuming that the PCC layers are of the same thickness. While these results provide evidence that the FAA’s flexural strength design limits can be relaxed provided pavement section thicknesses are held constant, they do not address the important relationship between pavement strength and pavement thickness. The Subcommittee believes that the significant benefit of using higher strength materials lies in being able to reduce construction costs through the use of thinner PCC surface layers. Many local areas are able to achieve higher strength concrete with normal construction practices. Making use of this phenomenon is logical and can help reduce construction cost.

**Recommendation:** The Subcommittee recommends the FAA continue research on the effects of higher strength concrete on concrete pavement fatigue life by investigating the pavement life when reducing pavement thickness proportionally to the increase pavement strength. Until such research is completed, relaxation in maximum flexural strength limits for PCC surface layers should be conditioned on the retention of “conventional” PCC surface layer thicknesses.

**Research, Engineering and Development Advisory Committee**  
**PPT Briefing to Sub-committee on Airports: March 19-20, 2013**

**AGENDA**

**March 19**

9:00 am	Introduction	<i>Mr. Christopher Oswald, ACI-NA, Subcommittee Chairperson (15 min)</i>
9:15 am	Update on FY-13 Budget/REDAC Process	<i>Mr. James R. White, Deputy Director, Office of Airport Safety and Standards, AAS-2 (20 min)</i>
9:35 am	State of ANG	<i>Mr. John Wiley, Manager, Aviation Research Division (15 min)</i>
9:50 am	Review of REDAC Recommendations	Subcommittee and ANG-26 (40 min)
10:30 am	Review of FY-13 R&D Progress	<i>Dr. Satish Agrawal, ANG-E260 (10 min)</i>
10:40 am	2013 Safety Projects + Plans for FY-14	<i>Mr. Jim Patterson – Overview of Airport Safety Section Projects, ANG-E261 (10 min)</i>
10:50 am	Break (15 min)	
11:05 am		<i>Mr. Don Barbagallo - Heated Pavements (40 min) RPD 155</i>
11:45-12:30 pm	Lunch	
12:30 pm		<i>Mr. Joe Breen – Aircraft Braking Friction (40 min) RPD 147</i>
1:10 pm		<i>Mr. Paul Devoti - Road Map (20 min)</i>
1:30 pm		<i>Ms. Lauren Vitagliano – Airport noise; Problematic Geometry; Safety Database; EMAS Marking/Signage; Approach Hold &amp; RSA signs (45 min) RPDs 133, 149, 151</i>
2:15 pm		<i>Mr. Don Gallagher –LED Lighting; New Technologies (15 min) RPD 151</i>
2:30 pm		<i>Mr. Nick Subbotin – Surface Operations; Baffle Efforts; EMAS damaged by Sandy (25 min) RPD 148 Project</i>
2:55 pm		<i>Mr. Keith Bagot – Cargo Firefighting; Biofuel; (35 min) RPDs 134, 140, &amp; 152</i>
3:30-4:15 pm	Discussion/Recommendations	Sub-Committee members and PPT

## March 20

8:30 am		<i>Mr. Robert Bassey – Research Taxiway; Low Cost Ground Surveillance; EIRT Test Team; Heliport; Windcone Study; Airport Construction Sign (35 min) RPDs 151, 153, 154</i>
9:05 am		<i>Mr. Ryan King – Wildlife Mitigation, Strike Database, Detection/Deterrents (25 min) RPD 150</i>
9:30 am		<i>Ms. Holly Cyrus - Airport Planning (10 min) RPD 132</i>
9:40 am	2012 Pavement Projects + Plans for FY-13	<i>Mr. Jeffrey Gagnon - Overview of Airport Pavement Section, ANG-E262 (15 min)</i>
9:55 am		<i>Dr. David Brill – 40 Year Design Life Initiative (45 min) RPD 144</i>
10:55 am	Break (5 min)	
11:00 am		<i>Mr. Al Larkin – FAA PAVEAIR Update &amp; Software Integration (45 min) RPD 143</i>
11:45-12:45 pm	Lunch BBQ	
12:45 pm		<i>Mr. Murphy Flynn/Dr. Navneet Garg – High Temp Test Facility (30 min) RPD 135</i>
1:15 pm		<i>Dr. Brill– Full-Scale Testing Results and Future Testing (30 min) RPD 138</i>
1:45 pm		<i>Dr. Brill/Mr. Barbagallo-Reflective Cracking R&amp;D Update (20 min) RPD 136</i>
2:05- 2:30 pm	Discussions/Report	
2:30-pm	New Research Requirements for FY-2014 and FY-2015	
3:30 pm	Adjourn	